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Medical
Direct
1945
Shortage

Vision and the Selection of Personnel in Industry*

Joseph Minton, F.R.C.S., Major, R.A.M.C.

THE author, an eminent British ophthalmologist, points out highlights of Great Britain's interest in eye health in industry.

WITH the expansion of the Industrial Medical Services has come the realization that industry presents many visual problems which have to be faced and eventually solved. So far, although this country has made no unified attempt to deal with the vision of employees, individual firms have done so. In 1938 the Industrial Welfare Society sent out a questionnaire to its 750 member firms in order to find out whether applicants for employment had to pass eyesight tests and what minimum visual standards were considered necessary. From the replies received from 398 firms, employing about 1,000,000 workers, it was found that most firms do not insist on eyesight tests; and that many firms who are vision-conscious vary in their approach to the problem. Thus, while many small firms do not require employees to pass eyesight tests, firms representing the same branch of industry insist on them. A large number of firms have instituted eyesight tests demanding a visual standard of 6/6 or 6/9 in each eye, while other firms are satisfied with 6/12 in each eye.

In this paper an attempt is made to elucidate some of the principles which may guide industrial medical officers in the selection of employees for various jobs in industry. There is no doubt that greater efficiency will be achieved in industry if we place the workers in jobs for which they are best physically fitted.

* Address delivered to the Association of Industrial Medical Officers in London on March 24, 1945.

This would eventually be followed by a larger output in production and would in addition ensure the safety of the workers in many branches of industry.

However, under present conditions of employment a country-wide compulsory medical examination could not be instituted for all workers. Should such an examination be carried out, a huge pool of physically unfit would be created whose members would have to be retrained and then placed in suitable employment. This is a big problem which it is hoped will be tackled in the future. A number of private firms have already adopted the principle of a compulsory medical examination of employees and the direction of workers into jobs for which they are best physically suited. This policy, which is ideal if carried out in combination with the training of the physically handicapped, must be put on a sound medical basis.

Ophthalmic Work of the Examining Factory Surgeon

The Factories Act of 1937 provides that juveniles (14-16) should be examined by the examining surgeon, and an eyesight test be carried out. The general examination of the workers must be thorough; the examining surgeon should be able to refer cases to consultants for special examination. At present the examining surgeon is given no instructions as to the visual standards required in the various branches of industry and, in most cases, he has no facilities for the efficient examination of the vision of the juveniles. It is essential that the examining surgeon and the industrial medical officer should use a Snellen type chart at 20 feet when the worker's vision is tested, and, should the vision of the applicant for employment be less than 6/12 in each eye, he should be referred to an ophthalmic surgeon.

The Medical Boards examining all men for War Service refer those whose vision is less than 6/12 in each eye to an ophthalmic surgeon for an opinion. The same procedure might well be followed by the examining surgeon and the industrial medical officer. The ophthalmic surgeon would then report on the vision of the individual as corrected with glasses. The visual standards laid down by the Army, Navy, and Air Force are based on the vision of the individual corrected with glasses. In special jobs in the Navy and for Air Crews in the Air Force, as well as in the case of drivers of

public vehicles (trains, buses, and trams), high visual standards without glasses are demanded.

For all workers in industry the use of glasses presents no handicap and the efficiency of the worker is in no way diminished by their use. On the other hand, investigations in the various branches of industry have shown that workers whose vision has been satisfactorily corrected with glasses have suffered from fewer symptoms of eyestrain when engaged at work than the workers who have not had an ophthalmic examination. Any reference, therefore, to the vision of an individual should imply the vision corrected, if necessary, with glasses.

Suggested Visual Groups in Industry

Modern industry is capable of employing men and women with all grades of vision—from Grade 1 with the highest vision, to the partially sighted and even totally blind. The standards of vision required in industry need not be rigid, but should vary according to the jobs assigned to the workers in the factory. For purposes of classification, all occupations can be divided into four groups. In the first group are the occupations which require especially good eyesight, such as the very close work necessary in the manufacture of silk yarns, silk hose, inspection and manufacture of electric light bulbs and radio valves, watchmaking, invisible mending, jewel work, etc. In the second group are the industrial occupations and distributive trades which require normal eyesight. In the third group are those occupations suitable for those with weak eyesight, such as cookery, soapmaking, gardening, billposting, etc. In the fourth group are the trades in which blind people are employed: brushmaking, basketwork, piano tuning, massage, physiotherapy, and many others. A more detailed classification of the visual standards required in industry is given below. The following grades of vision are suggested in allocating applicants for employment, whether juveniles or not, to various occupations.

Grade 1 Vision.—To this group belong all those possessing 6/6 or 6/9 vision in each eye and also those having 6/6 in one eye and not less than 6/36 in the other eye. Individuals in this group are fit for all occupations.

Grade 2 Vision.—Individuals having not less than 6/12 in each eye and also those having 6/12 in one eye and not less than 6/36 in the other eye. Workers with Grade 2 vision are fit for all industrial occupations except for the very close work essential in manufacture and inspection of radio valves, electric lamps, certain silk-yard trades and a few others. Grade 2 vision is sufficient for all clerical work, the engineering industry, and the driving of vehicles.

Grade 3 Vision.—In this group are all the one-eyed people who have 6/6, 6/9, or 6/12 in the good eye, and less than 6/36 in the other eye, or who have one blind eye. The one-eyed with 6/6 in the good eye are fit for all occupations, even for those which require fine close work. The one-eyed who have 6/9 or 6/12 vision can be engaged in most trades and industries. Certain occupations such as coal mining, and certain operations in the engineering trades such as hammering, chipping, turning, milling, etc., present a greater danger of injury to the eyes. It is therefore suggested that one-eyed workers should not be engaged in coal mining, any of the above-mentioned engineering operations, or any operation requiring depth perception.

Grade 4 Vision.—To this group belong workers who have 6/24 vision in each eye, or 6/24 in one eye and 6/36 in the other eye. People with Grade 4 vision can be employed in all outdoor occupations, building trades, carpentry, dock labor, portering, and many other like trades.

Grade 5 Vision.—To this group belong the blind and partially blind; it can include all individuals with less than 6/36 vision in either eye. The National Institute for the Blind has issued several pamphlets dealing with the employment of the blind. They show how, since the beginning of the war, the blind and partially blind have been employed in hundreds of industrial occupations: (1) Assembling of petrol tanks, crash helmets, ball bearing, etc.; (2) bakery work; (3) boot repairing; (4) catering; (5) clerical work; (6) engineering work; and (7) machine operating, and several others.

This subdivision of workers into 5 visual groups is meant to be a guide only, for the industrial medical officer will often come across workmen with 6/24 vision in each eye doing excellent work in engineering trades where a higher vision should be required. Vision is only one of the factors necessary in the make-up of the

skilled worker. High intelligence and experience often counter-balance the handicaps which arise from a poor visual acuity. Such people should not be turned away from their jobs, for in the selection of the right man for each job the total mental and physical make-up of the individual should be the guide.

Some Special Problems

Close Work.—Fine work at close range presents a special problem in industry. The radio-valve manufacture, electric-lamp inspection and manufacture, fine weaving and silk-hose manufacture, necessitate working at ten inches, or even less, from the job. This requires a constant accommodation effort and convergence to a greater degree than does ordinary clerical work. In the selection of workers for these jobs, greater attention should be paid to a full investigation of vision. The visual acuity required is 6/6 or 6/9 in each eye. The muscle balance and binocular vision should also be investigated. A Maddox Wing can be used for measuring the muscle balance of the eyes for near vision, and a Worth's amblyoscope is a very convenient instrument for estimating the degree of binocular vision (fusion, stereopsis, and convergence). Both instruments are small and cheap. Industrial medical officers are not usually fully acquainted with the details and interpretation of muscular imbalance. It would therefore be advisable that an investigation by an ophthalmic surgeon be carried out on all individuals engaged or likely to be engaged in such work. Young men and women with a high error of refraction (latent hypermetropia) will often have 6/6 vision but will suffer from headaches when engaged in close work. In all such cases a routine examination by an ophthalmic surgeon would lead to a correction of refractive errors and of muscle imbalance and thus would prevent headaches and eyestrain from which workers often suffer.

As a general rule one can state that individuals with refractive errors, if properly corrected with glasses, suffer no discomfort when engaged at close work. Older workers wearing glasses to correct their presbyopia are just as efficient as younger workers. Investigation of the Industrial Fatigue Research Board in 1927 and 1928 (Weston, and Adams) have shown that persons engaged in very fine close work suffer from eyestrain which is in many cases re-

lied by the wearing of spectacles provided with strong prism (base in) to relieve the excessive convergence. These investigations have been confirmed and in some factories these spectacles, which are also provided with a magnifying lens, are issued to the workmen; but of course they are not always worn. Dr. L. B. Bourne recently reported on the procedure in careful selection of workers employed in radio-valve manufacture, which involves close work on very fine parts. Employees are graded according to their distance and near vision, and on the degree of muscle balance of the eyes. Employees who have exophorias or esophorias greater than five prism diopters are not put on fine close work. The adoption of this procedure has been followed by very satisfactory results. Only a very small number of workers, about 2 per cent, have complained and asked to be transferred to another section of the factory where such fine close work is not necessary.

Recent research in binocular vision has shown that not only phorias but also poor stereoscopic vision may often be responsible for symptoms of eyestrain. The conclusion reached in "A Study of a Selected Group of Women Employed on Extremely Fine Work" is that to be able to continue fine close work without fatigue one should have a well-developed stereoscopic sense and good muscle balance for the near point. As a general guide one could recommend that employees engaged in very fine close work should not have hyperphoria. The exophoria or esophoria must not be greater than five prism diopters. They should have good stereoscopic vision in addition to a corrected visual acuity of 6/6 or 6/9 in each eye.

It is interesting to note that one-eyed workers with 6/6 vision in the good eye can continue working comfortably in occupations involving fine close work. Such careful selection of workers for fine close work should be done in factories, training and rehabilitation centers by ophthalmic surgeons, who should have the assistance of an orthoptist who might carry out treatment of individuals with small degrees of muscle imbalance and poor stereoscopic vision, but who are otherwise fit and willing to do such work.

Myopia.—The ophthalmic surgeon is often asked by myopes and parents of short-sighted adolescents whether it is safe for them to carry on with clerical work or any other type of close work. There is no evidence that close work has any effect on the progress of

myopia. In the past ophthalmologists held the view that close work caused a deterioration of the sight of myopes (a progression of myopia). Recent investigations have not confirmed this opinion. Myopes whose vision with glasses is 6/6 or 6/9 in each eye can carry on comfortably with fine close work (needlework, weaving, etc.). Myopes with 6/12 vision in each eye are fit for all types of clerical work. Adolescents suffering from myopia, whose corrected vision is less than 6/9 in each eye at the age of 16, should be advised against taking up close work, as with the natural progress of myopia between the ages of 16 and 25 there is a likelihood of further deterioration of their vision. At the age of 21 they might have 6/18 vision only and find themselves unable to carry on with clerical work or any other type of close work, with comfort. The selection of a suitable job by a high myope in adolescence will obviate many years of wasted training.

Latent Hypermetropia.—The railway companies insist that employees who are training as firemen and later as engine drivers, should have, on entering their service, 6/6 vision in each eye without glasses. Many young men with a latent hypermetropia of 2 or 3 diopters have 6/6 vision in each eye without glasses and pass the necessary eyesight tests required by the railway companies. At the age of 40 their latent hypermetropia becomes manifest and their vision without glasses drops to 6/18. When re-examined at this age their vision is below the required standards without glasses, although their vision with glasses is 6/6 in each eye. These men are refused promotion from firemen to acting drivers and are given lower-grade jobs, with loss of wages. The same applies to drivers of public vehicles who are not allowed to go on driving. They have wasted many valuable years in training for a high-grade job, and at middle age are refused promotion. This could have been prevented had an ophthalmologist examined their eyes before they had taken up employment. The railways and other public-transport companies should not employ men who are to be trained as drivers if their latent hypermetropia is 2 diopters or over.

The selection of workers for suitable jobs is one of the great problems to be solved after this war. With the co-operation of the industrial medical officers, ophthalmologists, psychologists, and safety officers, a great deal may be accomplished.

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Glaucoma and the Prevention of Blindness*

THE author presents in layman's language some salient facts about glaucoma.

Willis S. Knighton, M. D.

THE prevention of blindness has long since passed the infantile stage where medicine and surgery are asked to treat blind eyes and to make things better. It has grown steadily and wisely into a mature searching for first causes to forestall or to limit the primary factors that are responsible for poor vision later on. The doctor and the scientist, the teacher and the sociologist have combined their efforts in lecture hall, classroom, laboratory and office to prevent blindness.

It is a sad commentary that so many diseases which can be helped, are permitted to get out of control because of individual indifference or ignorance. Glaucoma is one of these and the penalty of neglect is blindness—blindness that cannot be relieved by medication or operation or any of the remedial methods known to medical science. It is final.

But there is a far brighter side to the picture if the patient will only heed. Glaucoma, treated in its early stages when the first vague symptoms begin to appear, can usually—not occasionally, but usually—be kept under control so that useful vision is not lost.

The simplest definition of glaucoma is a hardening of the eyeball that causes pressure on the optic nerve and the delicate nerves of the retina, eventually destroying them. The real cause of this hardening is not known, but the symptoms and progress of the disease are pretty well understood. And when the symptoms are

* Radio talk given over Station WNYC, under the joint sponsorship of the New York Tuberculosis and Health Association and the Medical Information Bureau of the New York Academy of Medicine.

treated early enough, the disease can be controlled and vision can be saved.

The trouble lies in the fact that these symptoms of early glaucoma are so vague and indefinite that they usually pass unnoticed for a long time, while the high pressure is causing damage. If the diagnosis of glaucoma is self-evident, the patient has waited too long and, since it is almost impossible for him to recognize the earliest symptoms of the disease, the only way to insure its early detection is to have regular, periodic eye examinations by a competent ophthalmologist.

One of the greatest stumbling-blocks in the treatment of glaucoma is the fact that insidious changes can and do occur without any warning in the shape of pain or noticeable loss of vision. These changes can be determined only by periodic tests and when they are discovered early they can be combated only by careful, unceasing attention to general rules of health and conduct, diet, and eye drops. The patient who follows these rules religiously and without lapses has the best chance of preserving his vision.

Glaucoma is most commonly manifest after middle age and the ophthalmologist is careful, at that period, to look for early signs and symptoms of the disease.

Once the diagnosis has been confirmed, it is necessary to continue life-long treatment to keep the disease under control. That sounds like a great hardship, but, when the choice is between going blind and using eye drops daily, the matter takes on a different light. Regular examinations will show how strong the drops should be and how often they should be used. Some eyes can be controlled by weak drops used infrequently, while others require stronger medication more often, and this can be determined only by careful checking. The ability to see well is no criterion. Unfortunately this may remain good for a long time, while the pressure in the eye is continuing its degenerating influence. The patient who neglects his treatment because he can still see well is inviting disaster. Too much emphasis cannot be placed upon the fact that glaucoma is not to be trifled with—the drops must be used exactly as ordered.

When drops fail to control the intraocular pressure, operation is necessary. The sooner this is done, the better, so that nature can be helped to regulate the pressure while the eye is still fairly

healthy. The tendency used to be to wait as long as possible before operating, but the results were not too happy. Now the trend is in the opposite direction; a minor operation performed early in the disease is much more successful than a more extensive operation later. The patient is not greatly inconvenienced because his stay in the hospital is short—not more than four or five days—and the convalescence is comfortable and uneventful.

The diagnosis of early glaucoma is not easy because the condition of the eyes is not the same from day to day, or from hour to hour. The tension, or internal pressure, of the normal eye varies during the day and night, from a normal low to a normal high, sometimes being influenced by general body conditions like fatigue or stimulation, and sometimes reflecting the mental or emotional states of anxiety or excitement. This wedging of the mental and physical reactions is called the psychosomatic relationship and plays a large part in the behavior of glaucoma. Emotional upsets, whether of stimulation or depression, affect the glaucomatous eye adversely and must be avoided as much as possible. On the other hand, a calm, phlegmatic view of life tends to avoid the extreme variations in ocular tension that are so disastrous.

The importance of good general health is obvious. Any infection or general disease which weakens the body as a whole has an influence on all of its parts, including the eye. The glaucoma patient who is either sick or worried is in a more precarious condition than one who is healthy and calm.

Daily variations in the tension of the eye are normal and to be expected. But when the tension gets too high, even though it be for only an hour or two a day, the effect is cumulative and there is ultimate impairment of vision. The danger in early glaucoma is that the ophthalmologist may happen to see the patient only during the time of day when his tension is normal, and not when it goes out of bounds. If glaucoma is suspected, the patient is often put in the hospital for a day, so that the tension can be recorded over a twenty-four-hour period, thus determining the normality or abnormality of the highest point.

There is another special test for glaucoma which gives valuable information. This is called the field test and shows the extent of the "side vision." When the tension gets too high, it affects the delicate

nerves of the retina and cuts down the field of vision. There are blind spots in the side vision and, in advanced cases, people or automobiles approaching from the side are not seen soon enough. But when the blind areas are very small they may not be noticed. The test must be done very carefully by a trained specialist. It often gives the earliest information about the status of glaucoma. Since the tension may *appear* to be normal, unless the patient is examined at one of the critical periods during the day, the tension test is not always reliable. The field test is a better criterion of the condition and progress of the glaucoma. Besides confirming suspicions of the presence of an early glaucoma, it is an invaluable indication of the efficacy of the treatment.

It is obvious that the patient must be studied carefully in order to determine the best way to proceed with his particular case. One examination is not sufficient, for glaucoma is not a static disease that can be arrested and cured. It is with the patient always, even when it is under control, and it is always potentially dangerous. Lapses in treatment, fatigue, excessive stimulation, worry or any undue mental or physical deviation from an even balance, can upset the delicate physicochemical equilibrium in the glaucomatous eye.

A large part of the medical treatment in any disease consists in building up the patient's spirit so that nature will have a better chance to effect a cure. The will to get better, which is born of confidence, is a powerful motivating force, often more potent than drugs. When the physician can encourage it, he can count the battle more than half won. Confidence and co-operation are nature's first assistants.

This is nowhere better exemplified than in glaucoma. The patient who "shops around" from one doctor to another may be getting the same treatment from each one, but his glaucoma will fail to show the improvement that comes from regular unworried visits to an ophthalmologist in whom he has complete confidence. The regularity of the examinations and the knowledge that a personal interest is being shown are important stabilizing factors that should not be forfeited. The patient who divorces himself from one ophthalmologist to consult another with a bigger reputation, is doing a disservice to both doctors and to himself. Consulta-

tions may be necessary in difficult cases and the ophthalmologist who understands glaucoma will welcome the opportunity to discuss matters with a colleague. In this manner the patient's record can be kept intact and another opinion obtained without breaking the continuity of the treatment.

How is glaucoma first recognized and how can one be sure that glaucoma is not present? These are questions that have troubled the ophthalmologist for a long time and they are still unanswered to his complete satisfaction. The usual signs and symptoms that prove the presence of glaucoma are not always present in the early stages; when they are definite and constant they indicate an advanced condition. The early indications are merely suspicions and must be examined carefully by an expert before it can be said that glaucoma is or is not present. Some of these, like frequent changes of glasses, occasional eye-ache, especially in dimly lighted places or after emotional upsets, may occur when glaucoma is not present. Other symptoms like halos or rainbows around lights occur in ordinary conjunctivitis when mucous is present. But, since they may also occur in early glaucoma, they should be investigated. Any eye discomfort or feeling or of seeing deserves careful consideration.

Proving the absence of glaucoma means a careful study of the eyes under controlled conditions.

Blindness from glaucoma is almost inevitable without expert treatment and guidance. The patient cannot tell by his own symptoms how his glaucoma is behaving, and must follow a carefully planned routine that is designed for his particular needs. With complete co-operation and mutual confidence, he and his doctor can save his vision.

Medical Social Service with Glaucoma Patients*

Phyllis J. Howe and Margaret R. Osterman

THE purpose of this paper is to describe medical social service for glaucoma patients. The medical social worker has a definite contribution to make to these patients.

Physical, Social, and Economic Aspects of Glaucoma

Glaucoma, as you probably know, is a serious eye condition which causes approximately eleven per cent of the blindness among adults. The exact cause of glaucoma is unknown, but a defect within the eyeball seems to prevent the fluid within the eye from circulating freely. As the fluid collects, the increased pressure may gradually destroy the optic nerve. Unless steps are taken to relieve the pressure, blindness is the result. In other words, glaucoma is controllable, but not curable.

Essentially, there are two types of glaucoma. In chronic glaucoma, the patient is often unaware of any physical symptoms and for this reason it is considered the more insidious; in acute glaucoma there is usually very severe pain. The following symptoms, however, may occur in the former: Dull pain in and around the eyes; halos or rainbows around lights; fogginess or blurring of vision; need for frequent changes of glasses; and difficulty in adapting oneself to a darkened room. These symptoms indicate that a person possibly has glaucoma and should immediately obtain medical attention.

In addition to its physical symptoms, glaucoma has a decided emotional component. Many eye physicians, in discussing this diagnosis with a patient, advise him to avoid any intense emotional

* Based upon a demonstration of that service as offered in the Episcopal Eye, Ear and Throat Hospital in Washington, D. C., under the auspices of the District of Columbia Society for the Prevention of Blindness.

situations, undue worry, or anxiety. The patient who has had a particularly upsetting incident is found, when examined in the clinic, to have an increase in intraocular pressure. There was one patient who had been controlled fairly well on drops, but who came to the hospital complaining of intense pain. When her tension was taken, it was found to be so elevated that she was immediately hospitalized. Further investigation showed that the night before her only sister had been suddenly killed.

Naturally any patient who has glaucoma and is told not to worry is caught in a dilemma, for he knows that he has a serious eye condition which, if not controlled, will result in blindness. Obviously this is a source of utmost concern to the patient, yet if he worries this very factor may aggravate his eye condition.

Treatment for glaucoma is usually a long and often discouraging process and, to insure good results, must be consistently carried out. Medication in the form of drops may relieve the pressure and, if the drops do not control the condition, surgery should be performed. In many cases drops are used, after surgery, for the rest of the patient's life. Once surgery is recommended it should be done as soon as possible, as any delay may result in a loss of sight.

Demonstration of Medical Social Work for Glaucoma Patients

There is no doubt that the patient with glaucoma has numerous problems in relation to his eye condition, and that he would need help. The District of Columbia Society for the Prevention of Blindness has for some time been aware of the amount of blindness which results from glaucoma among adults. The way to prevent blindness from glaucoma is to get to the patient directly—to make sure that he has an understanding of what the condition is, what kind of medical treatment is indicated, and, finally, what he, himself, can do to prevent further loss of vision.

Although other hospitals in the District of Columbia have eye services, the Episcopal Eye, Ear and Throat Hospital is, as its name implies, a specialized hospital for the treatment of eye, ear, and throat diseases. It seemed logical to use this hospital for the demonstration. The Variety Club of Washington pays the medical social worker's salary and the demonstration has been organized to extend over a period of two years.

A survey of the situation made by the Society resulted in the following recommendations as to the organization of the demonstration and in regard to the medical social worker's responsibilities:

ORGANIZATION:

1. Administrative responsibility to the administrator of the Hospital and to the ophthalmologist in charge of the Glaucoma Clinic.
2. Functional responsibility to the executive director of the District of Columbia Society for the Prevention of Blindness, a trained medical social worker.
3. Relationship to the Social Service Department of the Hospital, to be worked out on a co-operative basis.
4. Office space and physical equipment for the office, to be provided for the medical social worker, to insure privacy for interviews with patients; and a place for medical social records also, to be provided in the outpatient department of the Hospital.
5. Stenographic service to be arranged.

DUTIES:

1. Administrative:
 - a. Consultation and advice regarding clinic organization and management which affect the patient attendance, i.e., appointment system, registration, follow-up system, medical referrals.
2. Direct services to patients:
 - a. Review with all patients examined in the clinic their understanding of, and plans for carrying out, the medical recommendations.
 - b. Casework services to those who have problems and need help, whether those problems are financial, environmental, or emotional.
 - c. Case finding and case holding.
3. Responsibility to the community:
 - a. Interpretation of the Glaucoma Clinic to personnel in eye services of other hospitals to establish adequate referrals and co-operative casework.
 - b. Development of, and co-operation with, social agencies in the community that may be needed in assisting the patients.
 - c. The establishment of a register for glaucoma patients so

that the names of all glaucoma patients in the community will be available.*

- i. This would make it possible to develop a system of followup for all glaucoma patients.
- ii. Means could be taken, through lectures and printed material, to educate groups of patients as to good eye care.

This outline was submitted to the chairman of the Medical Board at the Episcopal Eye, Ear and Throat Hospital. It was accepted by him with the request that the Society find a medical social worker for the position. With the help of the National Society for the Prevention of Blindness, a worker was found. She has had the full course in medical social service as well as supervised experience in this specific type of work. She began working in the Episcopal Eye, Ear and Throat Hospital in October, 1944.

The organization and function of the existing social service department were such that the supervision of the medical social worker for this Demonstration was more effectively done by the executive director of the District of Columbia Society for the Prevention of Blindness. The medical social worker is responsible from an administrative standpoint to the superintendent of the Hospital, and from a functional standpoint to the executive director of the Society. This may not be an ideal arrangement, but, by and large, it has worked out satisfactorily.

What about the Glaucoma Clinic itself? It is held on each Thursday afternoon. Patients may be referred to it by outside clinics, physicians, and social agencies. The ophthalmologist who is in charge of the clinic examines each patient. There are, however, other eye clinics which meet daily, and to which patients with glaucoma go. No attempt has been made to centralize the medical care of all glaucoma patients in one clinic. The ophthalmologist refers any glaucoma patient needing eye surgery to the chief of the eye clinic. In the Glaucoma Clinic, a special type of medical record is being used which makes both medical and social information available to the eye physician and other hospital personnel.

Each patient with glaucoma is referred to the medical social worker for an interview. At present she records her understanding of the patient's reactions to his eye condition, and any other facts

* Register has not been established yet.

she feels would be of value to the physician, on a green sheet which is incorporated in the medical record. In case the patient seems to have what appears to be a serious problem about his medical care, she makes a social record for him which is filed separately from the medical record in her office. In other words, the medical social worker knows each patient who has glaucoma, even those who attend the other eye clinics.

The rôle of the medical social worker in the Glaucoma Clinic is threefold, as has been previously indicated. She is responsible for administration of the clinic and, therefore, discusses and reviews clinic procedures and practices with the eye physicians, nurses, and other hospital personnel. She is responsible for casework services to the patients, and for a certain amount of interpretation of her work to the community.

Since the medical social worker and the eye physician are responsible for the administration of the clinic, she consults with hospital personnel in regard to the organization of the clinic and its management. The appointment system, patients' registration, the follow-up system, and medical referrals for patients are all part of her responsibility. These, of course, are all important parts of the patients' medical care and may influence it in various ways.

The second responsibility of the medical social worker is casework service. It has been pointed out that she has received special education and training under qualified supervision before beginning work in the medical setting. "Her special contribution lies in the relating of medical social factors and in the treatment of individual social problems related to the medical care."¹ The method which she uses to accomplish this is casework. "Its practitioners deal directly and differentially with persons in need, and endeavor, individual by individual, to understand precisely what is needed and to make available the help indicated."²

The chief concern of the medical social worker is the welfare of the patient. As has been pointed out, she works in close co-operation with all professional personnel in the medical setting, under the leadership of the physician. Before the medical social worker inter-

¹ "Medical Social Work," *Social Work Yearbook*, Russell Sage Foundation, 1945, p. 262.

² Social Casework, *Social Work Yearbook*, Russell Sage Foundation, 1945, p. 415.

views the patient, she discusses with the physician the medical diagnosis, the indicated medical treatment, and any other relevant data. In her interview with the patient, she tries to show him that she is interested in helping him with his medical care and that, if he has a problem which may interfere with it, she would be glad to discuss it with him. She attempts to determine what the patient's understanding of his eye condition is. Does he know what the medical treatment will mean? Will he be able to carry it out? She wants to show the patient that she considers him as an individual and that it is his welfare with which she is primarily concerned. She wants to give him the feeling that she is the person to whom he may come for help in regard to any problems which may affect his carrying out of medical recommendations. Sometimes her reassurance as to his continued employability is as important as, or more important than, her helping him find ways to meet the problem of unemployability and what may mean financial dependency. In relation to this, we are reminded of a young woman who, after operation, thought she was unable to work because of her eyes. She did not mention this to the eye surgeon, but it was brought out in a subsequent interview with the medical social worker. The latter knew, from the review with the eye physician of the patient's present physical condition, that it would be of value for this young woman to work—taking her mind off herself would be of direct benefit to her psychologically, and, in turn, physically.

Early in the medical social worker's relationship with the patient she tries to show him how her "helping" differs from the other services in the hospital, because it is only as he discerns this difference that he can make the full use of her services. To grant all the patient's wishes is not always the way to help him. It is just as much a part of her work to correct him in some of his wishes if they are not consistent with the accepted function of the medical social service department of which she is the representative, and if for any reason they do not coincide with her obligations to society. Often the very limitations of the medical social worker's functions are helpful to both the patient and worker because, in focusing on them, the patient is helped to clarify his thinking. This, in itself, may be of help to the patient in releasing greater potentialities on his part. He will then be more capable of solving his own problems. It is to

be hoped that this will be carried over to other life situations and not just limited to his illness.

Some Specific Problems

What are some of the specific problems which the patient might present to the medical social worker? When the patient first notices that his vision is no longer as good as it used to be, his first thought is that eyeglasses will improve it. The eye examination, however, shows that he has glaucoma, and that his primary need is for medical treatment. Eye drops are prescribed and he is told to return to the clinic the following week. Nothing is said about the eyeglasses. If the diagnosis and his continued need for medical treatment are not explained to him, he will probably not return for further medical care and observation. Unless he does return regularly, blindness may be the result.

Once the patient has accepted his need of medication, the next problem is that of making sure that he understands the proper use of it. If the patient happens to be old and feeble, the question arises as to whether there is someone in the family who can put the drops in his eyes for him. Does the patient understand that they will do no good unless they actually get into the eyes themselves and that they must be used regularly?

As the patient becomes aware of what the medical diagnosis is, the very word glaucoma may be a threat to him. Questions may come to him about how this eye condition will affect him. It is essential here that the medical social worker know the current medical situation so that she can give him as much support and encouragement as is warranted, with emphasis upon his continued part in medical treatment. Since glaucoma is a chronic eye condition, by and large, the relationship between the patient and the medical social worker will probably last over a long period of time. An important part of this relationship is the support and encouragement which she gives him.

The patient may vaguely recall a relative who was blind from glaucoma. Will he become blind? The medical social worker can use a discussion of blindness in a positive way, as far as glaucoma is concerned, because of the very nature of the course of the disease.

It is assumed that a discussion such as this, however, would not be attempted without an understanding of the particular patient and of the emotional effects which the implication of possible blindness might have on him. As the patient develops an emotional acceptance along with an intellectual understanding of his condition, he is better able to carry out the recommended medical treatment. This is likely to be a very gradual process.

The medical social worker, on her side, must have an understanding and acceptance of the concept of the individual as a whole, and of the interaction of the physical and psychological factors. This is especially true when working with glaucoma patients, because it has been found that there is a direct relationship between physical symptoms (increase in intraocular tension which may result in the need for surgery) and emotional factors. Therefore, unless the medical social worker can help the patient to verbalize his fears, emotional blocking which may interfere with carrying out the recommended medical treatment may result. In working with the emotional aspects of disease, it is important for the medical social worker to proceed only at the patient's own pace. In addition, his acceptance of her is every bit as important as her acceptance of him.

It is essential, too, that the medical social worker understand what it means to the patient to ask for and to take help from her. It is particularly important to understand how the glaucoma patient feels about his eye condition as it affects his daily living. This requires knowledge and skill on the worker's part. Unless she is able to grasp this very important fact, the patient's co-operation with her will most likely be very limited. How he really feels about his problem will largely determine what he does about it.

Another problem which is likely to arise during the course of the patient's medical treatment is that of eye surgery. Eye surgery for glaucoma patients is not a long, complicated affair—the patient usually remains in the hospital a short period of time. However, the very thought of going to the hospital for an eye operation, of putting oneself under the complete authority of an institution such as a hospital, and of the eye surgeon, constitutes a very real threat to the individual. This anxiety, plus the added fear of possible loss of vision and its various implications, may very likely result in a

hesitancy about carrying through the medical recommendations. At this point, the co-operation between the patient, the eye physician, and the medical social worker is of great importance. The following case illustrates this point:

Mrs. B. was brought to the clinic by her daughter, a very nervous and apprehensive person. The mother had been complaining of pain and loss of vision for the past three months. When the patient was examined by the doctor, immediate operation was advised in order to save the patient from further loss of sight and, also, to protect her other eye which had excellent vision. The patient was most upset and confused and did not want the operation. Her daughter supported her in this attitude. In discussing the situation with the patient, two things were learned: First, the patient had a tumor removed a year before and was afraid that another operation of any sort would be disastrous to her; second, she knew a woman who had her eyes operated on and the stories of cutting and the pain, and the fact that she was worse after the operation, made the patient greatly fear any surgery.

When we talked with the patient, all this was discovered and she absolutely refused to have surgery. Her attitude was explained to the doctor, who recognized the importance of all these fears and who talked at some length with the patient about the type of operation and what would be done. Although the patient was relieved somewhat, she still refused to consent to surgery and wished to think it over. The doctor suggested that the patient be admitted for treatment only and that the social worker discuss the operation with her in a day or two after she had become better adjusted to the hospital setup. The patient was willing to do this, and was admitted to the hospital. The following day we visited her on the ward where she had talked with several patients who had eye operations and who were now up and around. She told us that she thought perhaps her friend was wrong in her descriptions of the operation and that, if the doctor thought that she should have an operation, she would consent to it. Surgery was done and the patient had an excellent result. She was able to obtain glasses that improved considerably the vision in the operated eye. She has continued to be very faithful in her treatment, and, at the present time, the condition of her eyes is satisfactory. When we last saw her, she thanked the medical social worker and said how much it had helped to have someone who had stood by and helped her to see the need for the operation.

This case illustrates some of the cardinal principles of medical social casework with this group of patients. It shows the establishment of a good working relationship between the patient and the personnel concerned with the medical care of the patient, with emphasis upon that between the patient, the eye physician, and the medical social worker. It points out a recognition of the patient as an individual, and it illustrates an understanding and acceptance of the patient's attitudes toward his illness. These points were the motivating elements in the situation. Unless there had been understanding of the patient's problem in so far as carrying out medical treatment was concerned, and unless the eye physician and medical social worker had been able to act as a result of this understanding (change the proposed plan to one which the patient could accept and use), the outcome would probably have been much different.

Medical Social Worker's Responsibility for "Case Holding"

In the statement in regard to the demonstration of medical social work with glaucoma patients, the responsibility of the medical social worker for "case holding" was mentioned. "Case holding" implies a discussion of followup and its principles. This is a part of the casework process. It would seem logical that as long as the glaucoma patient knows the medical social worker and how she can help him, he will feel free to discuss any problem which might arise in connection with his clinic attendance. She, on her side, will have a knowledge of the patient, his attitude toward his illness, the type of life he leads, the kind of work he does, and other factors which might affect his continued clinic attendance. Part of helping the patient to report regularly for medical care depends upon whether he does understand what is wrong with his eyes and whether he is the kind of individual who is able to do what is necessary to carry out medical treatment in order to preserve his vision.

The medical social worker's responsibilities to the patient are not limited to the confines of the hospital, but extend into the community as she works with other social agencies. For example, reduced vision may result in the need for a different type of work. The patient may need vocational guidance. Practically every state now has provision for vocational rehabilitation. In case the individual cannot afford medical treatment, it can be arranged if it will make

him employable. Therefore, the medical social worker may work out a referral to the local vocational rehabilitation office. If the patient is not employable in a competitive sense but would benefit from a sheltered workshop experience, he may be referred to the workshop in his community. In case there is a family problem which requires attention, the patient can be referred to the private family case-working agency. Since the patient will need to remain under continuous medical attention for the remainder of his life, a co-operative relationship will need to be maintained among agencies from which he is getting help. Definite lines of responsibility must be worked out on a co-operative basis as the patient's needs, capacities, etc., become evident.

Summary

To recapitulate, the medical social worker's chief responsibility is the welfare of the patient. The method which she uses is case-work. By means of it, she attempts to help the patient with any problem which he may have in relation to his illness—in this instance—glaucoma. She helps him to ease his anxieties, to relieve his discouragement, to give him support and new confidence, and to help him handle his health problem so that his other life problems will be less complicated. As he is able to resolve his problems, greater capacities should be released, and he will have, therefore, a greater use of himself. Instead of becoming a burden and added responsibility to the community, he will become a self-sustaining, contributing member of society.

Some individuals have come to think of the words, "social service," as meaning "financial relief," the "poor," the "down-trodden," and various other things. As a result, social service in a hospital is thought of, sometimes, as meaning purely relief to the indigent. It must be evident from what has been said that medical social service as practiced in this demonstration with glaucoma patients is something separate and apart from relief-giving. The medical social worker, to be sure, would assist a patient needing financial help, but she would do so by sending him to the proper social agency, which is not the Social Service Department in the Hospital.

What are the implications of medical social service for glaucoma

patients? First, medical social work should be a part of the medical care of any patient for whom a diagnosis of glaucoma has been made. This means that it should be available to private as well as to clinic patients. Each patient needs help in understanding his part in medical treatment. In addition, the problems of glaucoma patients are basically the same, in that each has certain anxieties and fears as to the meaning of this condition for him. Each, in his way, has need to discuss these with a medical social worker, and to have the opportunity to get help from her. It must be apparent that any patient with glaucoma needs continuous help with the carrying out of medical treatment which must continue throughout his life.

Medical social work should help to prevent medical shopping. It enables the patient to centralize his medical treatment, as the medical social worker is always available and he may always take his questions and his problems to her. Medical shopping does not prevail in the District of Columbia because the admission of patients to hospitals and clinics is controlled through a central admitting agency, but with this group of patients it can be a real problem because of the very nature of glaucoma.

Another desirable result of the demonstration is the innovation and use of a detailed social record as well as a medical record for every glaucoma patient. In time, such records should be invaluable for medical and social research in this field.

Since the medical social casework offered to eye patients in this community is essentially quite limited in scope, the demonstration has emphasized and pointed up the function of the medical social worker with this particular group of individuals. It has also served to help integrate and develop the services of other agencies with special reference to glaucoma patients.

Another result of the demonstration of medical social service, the exact limits of which cannot at this point be determined, for obvious reasons, has been to develop in the community an awareness and understanding of the symptoms and medical treatment of glaucoma.

Finally, it is hoped that, as a result of the demonstration, not only will patients with glaucoma have received better medical treatment, but that there will be a growing realization by the community of the value and possibilities of medical social service.

Glaucoma Clinic Procedures*

Ferdinand L. P. Koch, M.D., and Virginia M. Smith, B.S.

THE growing interest in the establishment of special glaucoma clinics makes this presentation especially timely.

FOUR years ago, the National Society for the Prevention of Blindness, through its Committee on Glaucoma, laid plans for the organization of a demonstration glaucoma clinic, through which methods could be developed to reduce the incidence of blindness and impaired vision caused by untreated or inadequately treated glaucoma. The expressed purposes of the demonstration were: (1) To determine the best routine examination to insure the earliest diagnosis; (2) to demonstrate the need for frequent examinations and the value of various methods of treatment; (3) to devise special record forms in order to obtain uniformity; (4) to study the value of training volunteer assistants; and (5) to provide an observation and training center for professional groups interested in preventing blindness from glaucoma.

Since the establishment of the demonstration glaucoma clinic at Manhattan Eye, Ear and Throat Hospital, New York City, in 1942, several other hospitals have undertaken to organize glaucoma clinics, and interest manifested would indicate that such activities are being considered in other parts of the country. Because of the interest expressed and the inquiries received, it was felt that a descriptive outline of procedures followed in the demonstration glaucoma clinic would be of value.

Functions of the Clinic

1. To provide more complete examinations and carefully supervised, continuous treatment for glaucoma patients.

* Based on experience of the demonstration glaucoma clinic organized by the Committee on Glaucoma of the National Society for the Prevention of Blindness.

2. To provide a central location for collection of research data related to the various aspects of the therapy of glaucoma patients. (This should include determining advisability of surgery at various stages of the disease.)
3. To determine the value of keeping glaucoma patients under close supervision for an extended period of time.
4. To provide an observation center for ophthalmologists, students of ophthalmology, nurses, social workers, and others whose special interest is glaucoma.

Functions of Personnel

1. **Clinic Chief**
 - a. Supervises all work in the clinic.
 - b. Establishes a routine to be followed in examining each patient.
 - c. Formulates policies regarding special examinations to be made on particular types of cases.
 - d. Considers treatment plan for all cases.
 - e. Supervises studies of various phases of the work.
 - f. Calls meetings of glaucoma clinic staff periodically for discussion of cases and procedures.
 - g. Correlates special services of his clinic with those of other clinics by arranging for discussion periods with clinic chiefs.
2. **Clinical Assistants** (Ophthalmologists; or residents in ophthalmology, when available)
 - a. Make routine examinations which include: (1) Visual acuity (with light perception and/or projection); (2) Anterior segment; (3) Media and fundi; (4) Slit-lamp; (5) Tonometry; (6) Gonioscopy; and (7) Fields of vision.
 - b. Obtaining from patient pertinent history items and progress notes.
3. **Nurse**—when available (usually serves as clinic administrator)
 - a. Determines visual acuity.
 - b. Tonometry.
 - c. Instructs patients in use of compresses, massage, drops and ointments.

- d. Instills drops for diagnostic purposes under direction of clinic chief.
- e. Cares for instruments, supplies and records, when necessary.

4. Clinical Technician (one or more)

- a. Tests fields of vision when requested by clinic chief. (Appointments are made for testing at other than clinic hours.)
- b. Records pertinent ocular history of new patients.
- c. Receives patients in clinic and directs them to proper station.
- d. Supervises patient-appointment system.
- e. Compiles data from records under direction of chief.

5. Volunteer Assistant (one or more)

- a. Records pertinent ocular history.
- b. Determines visual acuity.
- c. Tonometry.
- d. Assists with testing fields of vision, under supervision.
- e. Arranges patient-appointments and checks for completeness notes made by ophthalmologists.
- f. Records information concerning patients' diet and health habits.
- g. Assists with clerical work involved in investigative studies of records.
- h. Determines whether items on diagnostic checklist have been included on records.

6. Social Worker

- a. Interviews each glaucoma patient and prepares social history.
- b. Explains need for surgery when recommended by ophthalmologist.
- c. Stresses importance of using drops correctly and regularly.
- d. Checks on patients who do not return to clinic, sends out follow-up letters and makes home visits.
- e. Works with patients to overcome disturbing factors in home life.

- f. Arranges for additional social services available through community agencies, for example: home relief, special allowances for adequate diet, rehabilitation, recreation, transportation, convalescent care.
- g. Arranges for special examinations as ordered by clinic chief.

Procedures for Handling Cases

There are two groups of patients received: new patients and return-visit patients.

New Patients.—New patients consist of those who have never been to glaucoma clinic previously but may have been treated for varying periods of time in the afternoon general eye clinic. Every new patient is directed to the clinic technician or volunteer for history of eye condition and visual acuity. After this, he is directed to clinic assistant for the indicated examinations; and examined by clinic chief who prescribes treatment plan and notes special examinations to be made at future visits. (Examples: fields of vision, gonioscopy, refraction, general medical, psychiatric, dental.) The chief indicates the approximate date the patient should return and gives instructions as to examinations to be made, so that these can be noted at the appointment desk. Finally, the patient is directed to the appointment desk for his card indicating the date of his return visit.*

Return-Visit Patients.—The patients are admitted to the Hospital at general receiving desk where their records are handed to them upon presentation of the clinic card to the clerk. Each patient comes directly to the glaucoma clinic with record in hand and is admitted by the clinic technician or volunteer assistant. The clerk reviews the record and notes on the appointment slip the procedure which the particular patient should follow in the clinic. A station or bench number is indicated on the appointment card and this is used as a guide by each member of the clinic staff in directing the patient, after his particular part of the procedure has been completed.

* See page 103 for procedure followed in making appointments.

Procedures in Selecting Cases

Careful selection of patients is necessary to determine proper diagnosis and treatment.

Categorical Subdivisions and Methods of Treatment

The following outline is primarily for use of clinic personnel, other than physicians, to aid in routing patients through clinic.

Tension Elevated.—Over 35 mm. of Hg. (Underlined with red pencil.)

1. Reduction of tension attempted with miotics for one week, or
2. Hospitalization and medical or surgical treatment or both, if necessary.

Tension Normal or Subnormal.—Too successful medical and/or surgical treatment.

1. Continue with treatment already in effect, or
2. Reduce frequency and/or concentration of miotic employed, or
3. Discontinue miotic for increasingly longer intervals.

Tension Variable.—Ambulatory, nonchronic glaucoma simplex.

High Occasionally:

1. Miotics prescribed if none had been employed.
2. Miotics discontinued (if they had been instilled) for hourly to daily intervals, as presumptive therapy.
3. Consideration of disturbances in external and internal environment.
4. Provocative tests such as excesses of beverages, tobacco, and others.

In general, and bearing in mind that glaucoma simplex may be controlled but is not curable, it is the constant endeavor in the clinic to maintain useful visual acuity in every sense of the term.

Cases to Be Returned to Afternoon Clinics for Regular Treatment.*

1. Hopeless—blind, or nearly so, in each eye (arbitrarily, visual acuity of 5/200, or less).
2. Surgery refused by patient.
3. Elevation of intraocular tension secondary to some other eye condition.

* To return to glaucoma clinic once or twice yearly.

Procedures in Making Tests and Examinations

Vision.—To be taken with glasses, if worn for distance, by lay worker before patient is examined by ophthalmologist, as follows:

1. New patients—at first visit.
2. Return-visit patients—every two months, routinely.
3. If suspicious of decrease (fields contracted, etc.).
4. If tension is high.
5. Before and after surgery.

Tonometry.—To be done by trained volunteer or nurse:

1. New patients—at first visit.
2. If not taken for long period. (Patient has not kept appointments.)
3. If tension has been fluctuating greatly.
4. If tension continues high despite treatment.
5. If treatment has been stopped for a period, or changed.
6. After surgery. (Consult chief to make certain healing is complete.)
7. After paredrine—to check rise, if any.

Tonometry is not to be done routinely with tonometer for following types of cases: (1) Tension below 30 for several visits; (2) conjunctival and corneal infections; and (3) psychological reaction noted as a result of slight increase.

Fields of Vision.—To be charted by technician or volunteer on recommendation of ophthalmologist as follows:

1. Every 4 to 6 months depending on individual case.
2. Before and after surgery.

It is anticipated that testing on the tangent screen will largely supersede arc perimetry proper. In general, every effort should be made to use the smallest visible test object in accordance with the patient's best visual acuity, under conditions of standardized low accepted illumination and distances of one to two meters from the fixation point.

Information to be Supplied on Record*

All items should be dated and initialed.

Diagnosis.—Indicate diagnosis as soon as possible, as follows: (1) Simple; (2) acute; (3) congestive; or (4) non-congestive.

* See p. 98 for record form.

Dis.—P.M. d.
G.I. Reg.

A Record Form Used in Glaucoma Clinic*

GLAUCOMA CLINIC—MANHATTAN EYE, EAR AND THROAT HOSPITAL

NAME:	ADDRESS	REF. BY: DR.
AGE:	SEX:	CLINIC NO.
OCCUPATION		HOSP. NO.
DATE FIRST VISIT TO GLAUCOMA CLINIC		DATE FIRST VISIT TO MAN. E. & E.
DATE	DIAGNOSIS	SURGEON
	O. D.	O. S.
OPERATIONS ON EYES		
HISTORY: DATE TAKEN		
CHIEF EYE COMPLAINTS AND PREVIOUS TREATMENT: DATE OF ONSET		
GENERAL COMPLAINTS:		
EXAMINER		

EYE EXAMINATIONS AND FINDINGS

ENTER DATE OF EACH EXAMINATION IN PROPER BOX AND INITIAL EACH ENTRY

CORNEA				
CONJUNCTIVA				
SCLERA				
ANT. CHAMBER				
PUPIL				
IRIS				
LENS				
FUNDI				
OTHER FINDINGS				

GLAUCOMA CLINIC—MANHATTAN EYE, EAR AND THROAT HOSPITAL

NAME _____
ADDRESS _____
CLINIC NO. _____
HOSP. NO. _____

CONCLUSIONS RE BEST TREATMENT:

PROGRESS NOTES ON COURSE OF DISEASE: *(Date each item)*

GONIOSCOPY:

SOCIAL WORKER'S SUMMARY:

101

Re: CONCERNING FOOD AND GENERAL HEALTH HABITS:

Operations.—Information will be filled in from old records by volunteer.

History.—Special outline to be followed in taking histories. With limited time available for each patient, this part of record should be filled in by lay worker before patient is examined by ophthalmologist. (Ophthalmologist should add any significant notes to history which he gets from talking with patient.)

Recommendations about Food and General Health Habits.—To be filled in after food record is completed. Ophthalmologist bases recommendations on information appearing on this record.

Eye Examinations and Findings.—Terminology to describe appearance of eye—must be consistent in order to summarize material from all records. Describe as follows:

Cornea.—(1) Size—diameter; (2) Edema; (3) Opacities; (4) Deposits; or (5) Luster.

Anterior Chamber.—(1) Shallow; (2) Deep; (3) Cells; or (4) Normal.

Pupil.—(1) Miotic; (2) Medium; (3) Large; (4) Reaction—normal; (5) Reaction—absent; (6) Pupils unequal.

Iris.—(1) Pigmentation; (2) Synechia; (3) Vascularized; (4) Atrophy; (5) Ectropion; (6) Normal.

Lens.—(1) Cataract; (2) Swollen; (3) Exfoliation of capsule; (4) Normal.

Fundi-Disc.—(1) Cupped; (2) Atrophy; (3) Pallor; (4) Excavated; (5) Normal.

Vessels.—(1) Sclerotic; (2) Normal.

Appearance of Bleb—post-operative.—In examining media and fundi, paredrine should be used.

Paredrine.—Rules for use—to facilitate the earlier effectiveness of the drug:

1. No miotic for 24 hours before paredrine is instilled.

2. *Patient in dark room after paredrine is instilled.*

Types of cases to be used on:

1. Pupil contracted to 2 mm. or less.

2. Interference of fundus visualization by opacities of the media.

3. Suspected intraocular lesions, peripheral to the more central area.

4. Routinely, if fundus examination has not been done for 6 months or more.

(Information about use of slit-lamp, gonioscope, will be added when it is possible to include them as a part of the routine examination.)

Treatment Advised.—When surgery is advised this should be entered in red ink.

Progress Notes.—At each visit ophthalmologist should question patient about any symptoms he may have had between visits, and these notes should be placed on record. Also, indication of eyes feeling better should be noted.

General Instructions

Patients to return to afternoon clinic for recheck:

1. After complete checkup and diagnosis in glaucoma clinic, unless old glaucoma case.
2. Routinely, one to three times a year, depending on case.
3. If sudden change in eye condition.
4. Directly to referring doctor in afternoon clinic if surgery is recommended in glaucoma clinic.

Procedure for Making Appointments in Glaucoma Clinic

Patients are referred to the appointment desk by the ophthalmologist upon completion of his examination. A note is given to the patient for the appointment clerk which indicates:

1. Approximate date of patient's return. (If there are already too many appointments for that week, appointments should be made for following week or two weeks later—never more than 20 appointments for one week. If ophthalmologist has not indicated date of return, it is necessary to check this with ophthalmologist. Also, if tensions are 35 or over, patient is instructed to return following week, and if this has not been indicated, it must be called to the physician's attention.)
2. Prescriptions to be given and instructions for use of drops, which must be written out for patient. (If prescription number and instructions are not clear, they can be checked on Record Card No. 2—always noting whether drops or instructions for use have been changed.)

Patient is given prescription for drops and, on separate slip, instructions for their use. He is also given an appointment card indicating date of next visit and time—10:00 A.M. Patients to have paredrine come at 9:30 A.M. and "Paredrine" is noted on appointment card. These patients are brought to attention of the nurse or volunteer immediately on return so that paredrine can be instilled.

If patient is referred for surgery, that is noted on a slip to original doctor and clipped to outside of record. The patient is referred to the social worker assigned to the original service from which patient was referred. The record is given to the social worker. (The doctor does not always indicate the recommendation for surgery on the record. This must be done; hence, card is brought to doctor's attention for notation in red ink with dates.)

If patient is referred for refraction or other special examinations, a note of explanation is sent to the appropriate social worker. However, the usual procedure in regard to his next appointment is followed, and he is given an appointment card and prescription slip before being sent to social service.

If there are any special problems related to individual's home affairs, problems in connection with relief, securing special diets and additional foods, employment, pensions, veterans' services, and any questions pertaining to the hospital in general, the patient should be referred to the social worker. Patients (especially new) are instructed to return immediately if any sudden or new symptoms occur.

If original doctor has referred patient to clinic with a note requesting specific examinations, an answer should be dictated by attending physician, and attached to the record. The record is handed to the social worker so that it can be brought to the attention of the inquirer on his next clinic day.

A Summary Index Card is filled out for new patients. These cards serve as a record of appointments. When an appointment is broken, the date is circled in red. At the end of each month a list of these is prepared and submitted to the social service workers for followup. Information about disposition of cases referred for surgery is obtained from social workers, two months after the referral.

Field-examination appointments are made separately by technician in charge of these examinations.

Explanatory Notes for Filling Out First Section on Glaucoma Record Form*

History.—Enter date history is taken in glaucoma clinic.

Date of Onset.—Enter date patient first noticed any symptoms of glaucoma and mention each eye separately if affected at different dates.

Chief Eye Complaint.—Note following facts:

1. Diminution of vision.
2. Failing vision.
3. Halos and rainbows around lights at night.
4. Sensation of fog or film.
5. Severity and frequency of pain.
6. Location of pain (eye, temple, orbit, head).
7. Difficulty in reading which is not relieved by change of glasses.
8. Pain during or after movies.
9. Discomfort following a period in dim illumination.
10. Discomfort following excessive use of tobacco and alcohol.

Familial History.—Note whether siblings, parents or other blood relatives have glaucoma, are blind or have eye trouble.

Previous Examination and Treatment.—Enter date of *first* examination, whether examined by general physician, oculist, optometrist or optician, and type of treatment prescribed (drops, glasses, surgery, etc.).

General Complaints.—Note following:

1. Presence of diseases such as diabetes, rheumatism, arthritis, heart condition, high blood pressure, etc. (only if diagnosed by physician or clinic).
2. Colds in head—how frequent.
3. Constipation—how frequently physics are taken.
4. Menstruation—regular or irregular. If stopped—how long ago.
5. Condition of mouth and teeth and date of last dental check-up. Presence of artificial teeth.
6. Special treatment for other diseases or disturbances.

* May be filled out by volunteers under supervision of attending ophthalmologist.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, and occasional pertinent quotations from other publications. We offer to publish letters or excerpts of general interest, assuming no responsibility for the opinions expressed therein. Individual questions are turned over to consultants in the particular field. Every communication must contain the writer's name and address, but these are omitted on request.

Sight-Saving School at Hobart, Tasmania

This school has now been functioning for a little over five years and, until quite recently, when a class was established in Melbourne (Victoria), was unique in the Commonwealth. The building itself is modern and up to date, with its primrose boards, blue chalk, and automatically controlled lighting. Other equipment includes a talking book, a radio set, and a piano. Unfortunately, we have no bulletin typewriter. In addition to the main classroom, a large glassed-in room at the back of the main building is invaluable for activities and crafts, and is now equipped with a stage, so the pupils have the privilege of staging their plays in their own playhouse.

After experimenting we found that the co-operative plan of educating was not practicable here; therefore the children receive most of their tuition in the sight-saving room. They join the regular classes for singing and hobby periods. The senior boys do woodwork with the

children who have normal vision, and the senior girls attend domestic art classes. During the summer months, all the children visit the Tepid Baths one afternoon a week for swimming lessons.

Children from various parts of the state attend, and those from centers other than Hobart board at a hostel attached to the Tasmanian Institution for the Blind, Deaf and Dumb. This has disadvantages, and we look forward to the time when the pupils of the sight-saving school can be removed from an environment where they are constantly in contact with more seriously afflicted children.

Pioneering is never easy. As the school opened soon after the commencement of the war, it has been impossible to obtain various necessities, and this has tended to increase our difficulties. At first, we used speedball pens, but for some time these have been unobtainable, so we have had to manage with a very poor substitute. Reading matter, also, is almost unobtainable, except for lower classes. It is impossible to find books suited to

every age, as Australian publishers do not cater to the defective-sighted. We occasionally receive leaflets from England in 18- and 24-point type, but usually the senior children have to read material suited to the middle school. A simplified type of handwriting has been adopted, based on styles shown in Miss Marion Richardson's books. From infant classes onwards, a running hand is practiced, and the writing of the senior pupils is far better than that of any normally sighted children I have taught. It is large, flowing, stylish, and legible.

I would like here to pay a tribute to the help received from the National Society for the Prevention of Blindness in the United States. Various pamphlets including *SIGHT-SAVING REVIEW* have given invaluable help and, recently, Mrs. Winifred Hathaway very kindly forwarded her book on '*The Health and Education of the Partially Seeing Child*.' I cannot speak too highly of the help and encouragement received from the various articles included in these publications.

As our enrollment is twenty, and as all types of lessons are taken, we look forward to the day when bulletin typewriters will become available in our country. At present, assignments have to be done by hand, on cards—which involves much extra work. Each week, the pupils listen to broadcast lessons on Health, English, Singing, World Affairs, and Social Studies. On

August 20, 1945, the Dramatic Class of the sight-saving school broadcast an adaption of Browning's "Pied Piper" over national stations. I have found dramatic work most valuable in speech training and in helping the young actors to develop poise and confidence.

The people of this state are greatly indebted to Dr. Bruce Hamilton and also to the Tasmanian Education Department which so readily adopted his suggestion that Tasmania should pioneer in catering to the defective-sighted children in our midst. We hope it will not be long before the larger states of the Commonwealth follow our lead.

—MISS E. CONNOLLY
Hobart, Tasmania

TO THE EDITOR:

In the Spring (1945) issue of the *SIGHT-SAVING REVIEW* (vol. XV, page 30) there is reprinted from the *Archives of Ophthalmology* a paper by Drs. Hardy and Rand entitled "Elementary Illumination for the Ophthalmologist." The scientific specification of foot-candles or intensity of illumination has been one of the major objectives of researches in seeing for many years and new knowledge and techniques have crystallized in the past decade. The authors treat this important aspect very meagerly. In fact, anyone familiar with the growth of knowledge pertaining to the rela-

tion of illumination to the visibility of visual tasks and also the complex relationships of light, vision and seeing knows that much of our progress in this direction has crystallized since 1931. The authors ignore this and quote Troland as of 1931 with a finality that is ridiculous. They might as well ignore the "miracle drugs" which have come into medical practice since that time and also all the great progress in medicine, surgery and various other sciences and practices of the past decade. They even quote what Katz said in 1896! This is certainly the period of antiquity in lighting knowledge and practice, and it approaches a similar period in some major aspects of medical, ophthalmological, and other practices which involve human welfare.

To anyone sincerely interested in the knowledge of the relationships of light and sight and of the relation of these to visibility in an extreme variety of visual tasks, many scientific papers are available in appropriate journals since 1931. The work of myself and associates which the authors mention casually in passing is ignored along with all the work of others. The authors should know that our researches in seeing are prosecuted with the same freedom and desire to ascertain the truth as exist in all General Electric laboratories whose accomplishments speak for themselves. Why do the authors ignore the results of extensive researches of the past

thirteen years which are revolutionizing lighting practice and are providing for the first time a scientific foundation for the specifications of light and lighting? There may be an answer to this question, but the answer can scarcely be an excuse for the amateurish and antiquated discussion of the very important matter of illumination. Much of the revolutionary knowledge and some of the new criteria, techniques and devices have interested many ophthalmologists who recognize that seeing involves other sciences and practices which affect efficiency, safety, and welfare of human beings throughout our artificial world of prolonged critical seeing. Certainly human eyes and human seeing-machines are entitled to all the help that is available. They will not get it from those who assume that the growth of knowledge ceased in 1931.

—MATTHEW LUCKIESH, D.Sc., D.E.
Director, Lighting Research
Laboratory, General Electric Company
Nela Park, Cleveland

September 18, 1945

TO THE EDITOR:

As Mr. Luckiesh has paid no attention to either our title or our references to recent and reliable sources of information on illumination he does not move us to change any statement we have made.

—LEGRAND H. HARDY, M.D.
GERTRUDE RAND, PH.D.
September 28, 1945

Note and Comment

National Society Annual Meeting.—The annual meeting of the National Society has been scheduled for December 11, at 4.00 P. M., at the Russell Sage Foundation Building, 130 East 22nd Street, New York, N. Y. Dr. Frederick W. Maroney, Dean of Brooklyn College, will speak on "Health Education: The Importance of Eye Health and Efficiency in the Educational Program." The regular business meeting will precede the speaker. This is an open meeting and anyone interested is urged to attend.

National Society Represented at Pan-American Congress.—Mrs. Eleanor Brown Merrill, Executive Director of the National Society for the Prevention of Blindness and President of the National Health Council, will leave New York on November 16 to attend the Second Biennial Pan-American Congress of Ophthalmology, to be held in Montevideo, Uruguay, November 26 to December 1. At the Congress, Mrs. Merrill will present a paper on "Medical and Lay Co-operation in National Prevention of Blindness Programs."

On invitation, Mrs. Merrill will visit Lima, Peru; Santiago, Chile; Buenos Aires, Argentina; Porto Alegre, São Paulo and Rio de Janeiro, Brazil, where she will confer with leading citizens in an effort to stimulate prevention of blindness activities in those countries. It has been estimated that there are between 180,000 and 240,000 blind persons in the twenty Latin American countries.

In conjunction with the Society's participation in the Congress, a special exhibit in Spanish has been prepared, to be presented at the Scientific, Industrial, and Social Work Exposition held under the auspices of the Congress. The Society's exhibit presents, in five large oil paintings, the following aspects of "The Doctor's Job in Preventing Blindness": (1) Drops at Birth Save Babies' Eyes; (2) Preschool Eye Care; (3) Help Establish Sight-Saving Classes; (4) Eye Health and Safety in Industry; and (5) Periodic Checkup Past Midlife. In addition, a smaller table exhibit has been prepared on the use of traveling eye clinics for rural patients. These units

have been presented to the Pan-American Congress with the thought that, following the meetings, they will be circulated throughout the South and Central American countries at national medical, social work, and educational meetings.

New Quarterly on Ophthalmology.—The first issue of a new publication, the *Quarterly Review of Ophthalmology*, was brought out during the spring of 1945 by a staff of ophthalmologists under the supervision of Dr. Conrad Berens. Through the combined clerical and teaching experiences of its Board of Editors, the *Quarterly Review* will provide interesting and helpful knowledge, particularly with reference to new and improved techniques. The material in each issue will be classified and planned so that the magazine will present a continuous extension course in visual care, combining within one set of covers the foremost current contributions. Because of its scope, the new journal will contain a complete subject and author index.

Millar Awarded Medal.—Mr. Preston S. Millar, a vice-president of the National Society for the Prevention of Blindness, has received the Illuminating Engineering Society Gold Medal for 1945. The Medal is awarded annually "for meritorious achievement conspicuously furthering the profession, art, or knowledge of illuminating engineering." Mr. Millar is a charter member of the I.E.S., and was its president in 1913. Now president of the Electrical Testing Laboratories, Inc., he has for nearly fifty years exerted an outstanding influence in the lighting field.

N. Bishop Harman, LL.D., F.R.C.S.—1869-1945.—We learned with sadness of the death in June of one of our earliest friends, N. Bishop Harman, the renowned English eye surgeon. It was he who was largely responsible for the early campaigns in England toward the eradication of ophthalmia neonatorum and other causes of blindness. It was he, also, who promoted the establishment of the first sight-saving class in London, in 1908—several years before the first one was begun in the United States. Though Mr. Harman's professional interests widely transcended the field of ophthalmology, it is in this field—to which he brought a broad, sociological point of view—that he will be best remembered by us here in the United States.

Report on Voluntary Health Work.—Recommending the revitalization and strengthening of the voluntary health agencies of this country, the National Health Council, of which Mrs. Merrill is president, issued a report entitled *Voluntary Health Agencies—an Interpretive Study*, by Selskar M. Gunn and Philip S. Platt. The report, supported by a grant from the Rockefeller Foundation, involved field work and research for three years on 568 voluntary agencies in 65 cities and 29 states. The purpose of the study was to ascertain the present scope and effect of the work of the 20,000 voluntary health agencies in the United States, and to determine how they can attain greater effectiveness in their respective areas. These agencies (exclusive of the Red Cross) at present have budgets of some 50 million dollars a year and enlist the active support of over 300,000 board members and professional advisers, as well as an even greater number of volunteer workers.

The study was conducted under the direction of an executive committee composed of the following members: Louis I. Dublin, Ph.D., Chairman, 2nd vice-president and statistician, Metropolitan Life Insurance Company; Reginald M. Atwater, M.D., executive secretary, American Public Health Association; Ira V. Hiscock, Sc.D., professor of public health, Yale University; Bleecker Marquette, executive secretary, Public Health Federation, Cincinnati; and Emilie G. Sargent, R.N., executive director, Visiting Nurse Association, Detroit.

Illinois Society's Industrial Program.—The Illinois Society for the Prevention of Blindness has been active in assisting in examining the eyes in industry, and in the prevention of blindness from accidents in industrial plants, since October, 1943. A representative writes:

Up to the first of this month, we had tested a total of 7,322 people employed in 32 plants by small industry in the Chicago area. We define small industry as a plant employing less than 1,000 people. Of this total number of people tested we found an average of 57.87 per cent, with and without glasses, having defective vision of varying degrees. It is interesting to note that, of all the plants tested, 30 per cent are included in the 41 to 50 per cent of defective vision group and 13 per cent of these plants are in the 81 to 90 per cent defective group. Most

of the plants that we have surveyed have been very co-operative in arranging schedules for examinations and in the follow-up of our recommendations, and most of them have arranged to have all employees with defective vision given further examination and correction.

A radio manufacturer employing approximately 800 people is now retaining an ophthalmologist to make further examinations in his plants. The management paid the physician's examining fee and also paid up to \$10 for glasses. We have been testing this plant each month and as a result their entire personnel is operating at top efficiency with normal vision. They have not completely fulfilled our lighting recommendations because they are now making plans for a new and modern building with light intensities to be set at recommended levels. Their goggle program is not set up for complete eye protection, as we have suggested to them, but they do compel operators to wear eye protectors where the hazard is great. This is, of course, contrary to our belief, as serious eye injuries usually occur where they are not expected.

A recent survey of a large office group showed 70 per cent with normal vision. The defective group is being examined further, and corrected, the entire cost being paid by the management. This same firm has made arrangements with other agencies for a complete health program, including examination of heart, lungs and dental X-rays. They are also making a complete change of their lighting equipment to give the required levels for better vision.

In a small shop where they machine brass and steel valve castings, our examinations show a 47 per cent with defective vision. They are following our recommendations to the letter, and have already reduced their accident-frequency rate up to 15 per cent. All of their employees who were found to have visual defects were sent to an oculist to be corrected. They have instituted a complete goggle program with central control and have also corrected their lighting errors. The interior of the entire shop has been painted a soft white to increase reflective lighting and visual efficiency.

I have given the above as typical illustrations of some of the program that we have been able to accomplish in the Chicago area. There are, we understand, approximately 1,500 small plants in the state of Illinois, and, judging from the number of people we find with visual defects, industry in general is considerably handicapped and not operating at top efficiency on account of them. We use the Bausch & Lomb

Ortho-Rater in making our examinations and besides the operator of the Ortho-Rater we employ a safety engineer to check on lighting and other working conditions and submit his report, in addition to the report on eye conditions, to the management.

Oddities Department.—The Travelers Insurance Company, Hartford, Conn., will lend on request a photograph illustrating an unusual accident—to a fly. When a workman was sawing sheet aluminum on a high-speed bandsaw, a small particle of metal which was thrown off imbedded itself in the neck of a fly which had been flying nearby. This accident points up the necessity of wearing goggles as protection against flying particles which can strike even such a small, swiftly moving object as a fly.

Among nature's oddities is the electromagnetic field generated by a snail, which can remove a fragment of steel from an eye. Serving in a part of England where medical care was not possible, a soldier as a first-aid measure packed a snail into a small gauze pad and applied it directly to an injured soldier's eye. The fragment of steel was found sticking to the gauze when the pad was removed the following morning.

Philippines Resume Civilian Ophthalmological Meetings.—On July 5, for the first time since the Japanese occupation of Manila, there was a meeting at the Philippine General Hospital of civilian and military physicians interested in diseases of the eye, ear, nose, and throat; and on July 26 all medical officers in the area were invited to the San Lazaro Hospital in Manila to attend a clinical conference featuring eye, ear, nose, and throat cases.

District of Columbia Society Activities.—The District of Columbia Society for the Prevention of Blindness recently sponsored a poster contest for students of District commercial art schools, to emphasize the need for eye care. First prize was won by Capt. S. S. Shaw of the National Art School; his and other posters will be reproduced and distributed by the Society. The Society also sponsored two extracurricular classes in group activities for visually handicapped children of the District. The emphasis of the classes is on socializing these children, who may feel physically and psy-

chologically insecure; leaders are graduate students in group work at the National Catholic School of Social Service.

Eye Clinic for Eskimos.—The first eye clinic to visit the Arctic Circle left on the *Nascopie* with Dr. Walter Cewson, ophthalmologist, Flight-Lieut. A. W. Tweedle, optometrist, and Mrs. Margaret Moeller, of the Prevention of Blindness Department of the Canadian National Institute for the Blind, Toronto. When the ship calls at the various ports, the Eskimos will obtain their first eye examination and help for those in need of medical or surgical eye care.

Delta Gamma Activities in Sight Saving.—Aiding the Blind and Sight Conservation has been a project of Delta Gamma since 1936. Among organizations that have co-operated with this fraternity for women are: American Foundation for the Blind, New York City; Arthur Sunshine Home and Nursery School for the Blind, Summit, New Jersey; Braille Institute of America in Los Angeles, American Brotherhood for the Blind, Los Angeles; National Society for the Prevention of Blindness, New York City; The Seeing Eye, Morristown, New Jersey. Orthoptic Centers are sponsored by Delta Gamma in Rochester, New York, and in Evanston, Illinois; and in Los Angeles, the fraternity has established nursery schools for visually handicapped children of preschool age.

Tennessee Promotes Sight Conservation.—The Sight Conservation Service of the State Department of Public Welfare sponsored and participated in institutes on the exceptional child, held in six localities. The day at each school devoted to the visually handicapped included talks on "The Importance of Conservation of Sight in Children and Adults" and "Sight Conservation in a General Education and Special Class Program." There was also an hour's demonstration showing children at work in sight-saving classes. The six institutes were conducted simultaneously, and were open to teachers, students, parents, welfare and health workers, civic club and voluntary agency members, and other interested individuals; no fee was required unless college credit was desired.

Continuation Courses in Ophthalmology.—The American Medical Association's Council on Medical Education and Hospitals has

announced several postgraduate continuation courses in ophthalmology for veterans and civilian physicians. The American Academy of Ophthalmology and Otolaryngology is currently conducting a home-study course, to extend through May, 1946.

Expansion of Industrial Eye Health Program in England.—Research in industrial ophthalmology is being undertaken by the London Institute of Ophthalmology. As a beginning, a national survey will be made of workers and of present industrial ophthalmological programs. An appeal is being made to persons in all communities who have had experience in industrial ophthalmology to volunteer their services for this project.

Prevention of Blindness in Massachusetts.—The Massachusetts Division of the Blind reports that its major effort in the field of prevention work this year has been directed toward the passage of legislation to prohibit the sale, use and possession of air rifles and BB guns. Endorsements of eighteen organizations interested in safety, health or welfare, were presented at a hearing in April.

A conference was held in May to discuss the problem of diabetes as it relates to blindness; participants were the director and members of the Ophthalmological Advisory Committee of the Massachusetts Division of the Blind, and Dr. Elliott P. Joslin, diabetic specialist. Social workers in diabetic clinics in Boston hospitals were invited, and it is hoped that a working program may be established.

A study of the causes of blindness in 1,176 recipients of state aid has been made, and data secured will be summarized in articles to appear in bulletins of state and local organizations, to inform social workers and educators of the causes of blindness within the state.

Summer Session Courses.—Courses for the preparation of supervisors and teachers of the partially seeing were given during the summer sessions of Teachers College, Columbia University, New York City; and Wayne University, Detroit, Michigan. Thirty-three registrants took advantage of these courses.

Courses for regular-grade teachers interested in the conservation of vision of their pupils were given at the University of Wis-

consin, Madison; the University of Oregon, Portland; and State Teachers College, Terre Haute, Indiana.

Fluorescent Lighting.—The Joint Committee on Industrial Ophthalmology, representing the Section on Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology, has submitted to the Council on Industrial Health of the American Medical Association a report on the effect upon vision of fluorescent light, the ultraviolet and infrared components of which have been suspected by physicians of possessing harmful qualities. The gist of the report is that fluorescent light is not harmful to vision, and should not cause eyestrain if properly installed and used.

The Westinghouse Electric and Manufacturing Company of Bloomfield, New Jersey, also reported recently on fluorescent lighting, stating that as a general rule bare fluorescent lamps should not be recommended except when used primarily for decoration, or in industrial plants with white ceilings where bare fluorescent lamps with shielding will be better for "see-ability" than direct lighting reflectors with "exposed" lamps.

Ida Mann Named Professor at Oxford.—Dr. Ida Mann is the first woman to become a professor at Oxford University. Well known for her researches in embryology of the eye, her appointment is part of the University's plans for research into fundamental problems of vision, particularly biochemical aspects.

Eye Disease in South Africa.—In a recent lecture Mr. R. W. Bowen, M.P., President of England's National Council for the Blind, urged Africa to wake up to the fact that all over the continent eye diseases and blindness are rapidly affecting a large proportion of the native population, with trachoma especially prevalent. The Order of St. John is investigating this alarming situation, with the aim of establishing in South Africa facilities for training medical men in eye work.

High-Altitude Goggles.—The use of electric heating elements, inserted into the plastic window of flying goggles, is a recent development of the General Electric Company. These specially designed goggles are used for high-altitude flying.

Accident Proneness and Visual Difficulties.—Drs. Colt and Barton of the Colt's Patent Fire Arms plant, Hartford, have conducted an experiment with the Vectograph Target, on 120 "accident repeaters" in their factory—the term being defined, for purposes of this study, as a worker with an average of one or more accidents a month for at least nine months. Two control groups were obtained by examining all employees in three general machine departments—including 40 "repeaters." As a result of the study, it was concluded that there is some correlation between accident proneness and the following visual difficulties: suppression of simultaneous binocular vision, impaired stereopsis, exophorias in distant vision, and esophoria in near. These defects, if occurring in conjunction with poor scores on such psychological examinations as dexterity, would be cause for rejection of a worker from a hazardous job. The authors believe that even the experimental model of the Vectograph used in this study would be of great use to industry.

Current Articles of Interest

The Sulfonamides in Ophthalmology, Howard F. Hill, M.D., *Journal of the Maine Medical Association*, April, 1945, published monthly by the Maine Medical Association, 142 High Street, Portland, Maine.

The author believes that sulfonamide compounds have been the most important addition to ophthalmologic therapeutics during the past twenty-five years, even though their indiscriminate use cannot be advocated because of the possible danger of toxic reaction, or the development of sensitivity. The article gives a detailed account of the many uses of sulfonamide compounds (either powder, ointment, paste, or emulsion form) in the treatment of such ophthalmic infections as trachoma, inclusion blenorhoea, gonorrhreal ophthalmia, staphylococcus infections of the eye, catarrhal conjunctivitis, influenza-bacillus conjunctivitis, dacryocystitis, orbital cellulitis, colon-bacillus conjunctivitis, actinomycosis infection of the lids and orbit, early postoperative wound infection, panophthalmitis and endophthalmitis, and sympathetic ophthalmia.

Heterophoria and Neurosis in Flying Personnel, H. C. Beccle and E. H. Kitching, *British Journal of Ophthalmology*, March, 1945, published monthly by the British Journal of Ophthalmology, Ltd., 24-27 Thayer Street, London, W. 1, England.

The authors reviewed 57 cases and found that frequently heterophoria and neurosis coexist; also, that as a rule heterophoria is a symptom of hysteria and part of a generalized psychologic illness. They believe that, in cases where heterophoria is combined with neurotic symptoms, curative measures should be decided upon by collaboration between the ophthalmologist and the psychiatrist, since orthoptic treatment will cure only the heterophoria, leaving the patient vulnerable to a recurrence.

Pathogenesis of Punctate Keratitis in Onchocerciasis, Antonio Torres Estrada, F.I.C.S. (Geneve), *Boletin del Hospital Oftalmologico de Nuestra Senora de la Luz*, January-February, 1944,

published bimonthly by La Sociedad de Oftalmología del Hospital Oftalmológico de Nuestra Señora de la Luz, Ezequiel Montes 136, Mexico, D. F.

There are two phases of keratitis in onchocerciasis: a microscopic one found in an apparently healthy eye, and a macroscopic one found in serious disorders of the eye.

The first phase is characterized by a deep punctate keratitis, made up of small, gray, opaque dots, scattered over the thickness and length of the cornea. This process is slow and no formation of vessels, nor signs of swelling, are visible. Generally, microfilarias are found in large numbers in the anterior chambers, but decrease as keratitis advances; vision remains normal.

When infiltrated patches of punctate keratitis are studied directly under a slit-lamp, a whitish cloudiness is seen in the center, elongated as a rod, and sometimes slightly bent. Old infiltrations or patches show a tendency to become confluent and lose their central cloudiness.

When infiltrated patches are subjected to reflex light, the aspect is completely changed, with the gray infiltrate being cleared but with the elongated cloudings more noticeable, giving the appearance of small crystal rods which are seen exclusively in the onchocercal keratitis. In size, thickness, and refraction they are identical to the microfilarias. On the other hand, dead microfilarias, some straight and some slightly bent, are undoubtedly the starting point for the opaque patches. The opacity is probably due to the cloudiness of the corneal parenchyma, produced by the dead parasite and not due to an infiltrate, as was formerly thought. This new theory would explain the slow progress. Until the present time no pathological study of the healthy eye, nor of the eye with an enormous amount of microfilarias, has been made. Until further investigations of the disease have been made on laboratory animals with the parasite, and serious consideration is given to these facts, many problems concerning onchocerciasis must remain unsolved.

Transplantation of the Cornea, O. I. Shershevskaya, *American Review of Soviet Medicine*, August, 1945, published bimonthly by the American-Soviet Medical Society, 130 West 46th Street, New York 19, N. Y.

The author believes that Soviet ophthalmologists have the leading rôle in keratoplasty at present, with most of the credit going to Filatov, a pioneer in this field who constructed special instruments for the operation and improved its techniques, and whose research widened the possibilities for this type of surgery.

Visual Exercises in Ophthalmology, Joseph I. Pascal, M.D., *Archives of Ophthalmology*, June, 1945, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

The author believes that visual exercises will form a very large part of future ophthalmologic practice, requiring the services of an orthoptic technician who has been trained to teach all types of visual exercises under the strict supervision of an ophthalmologist.

An Analysis of One Hundred Cases of Strabismus Treated Orthoptically, R. U. Gillan, M.D., *British Journal of Ophthalmology*, August, 1945, published monthly by the British Journal of Ophthalmology, Ltd., 24-27 Thayer Street, London, W. 1., England.

The findings here are based on a comparison of the degree of deviation present before and after treatment, and whether this was with or without recourse to operation; and the comparison of binocular vision present before and after treatment.

Of 63 cases treated by orthoptic treatment only, 23 achieved a final deviation of 0 degrees (the original deviations being from 3 degrees to 25 degrees).

Of the 37 cases treated by orthoptic treatment plus operation, 6 became perfectly straight (the original deviations being from 20 degrees to 35 degrees).

Of the 100 cases, however, only 25 became perfectly straight and fully stereoscopic. Of the balance, 20 became almost straight and fully stereoscopic; 26 became straight or almost straight without becoming fully stereoscopic, and 29 did not become either straight or stereoscopic.

These cases were checked against comparable cases which had no treatment except the wearing of glasses. Among the controls used, there was no case of spontaneous cure, although in 11 cases there was a reduction of squint (6.7 degrees). The remainder were stationary or got worse.

The conclusion reached from this survey is that the absence or failure of stereoscopic vision is the main etiological factor in the causation of concomitant strabismus in childhood.

Ocular War Neuroses, Capt. Henry L. Birge, M.C., A. U. S., *Archives of Ophthalmology*, June, 1945, published monthly by the American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois.

A complete ophthalmic survey was carried out on 2,500 cases; at the end of each examination, when no organic cause was found, the condition was classified as a neurosis. In treating ocular war neuroses surgical intervention is ruled out because the neurosis recurs; however, psychiatric consultation, together with medical treatment when there is an ocular defect, brings satisfactory results.

Book Reviews

REFRACTION OF THE EYE. Alfred Cowan, M.D. Philadelphia: Lea and Febiger, Second edition, 1945. 287 p. ill.

The second edition of Dr. Cowan's excellent book on refraction has been revised, rearranged, and brought up to date. The theory of optics, presented in the first part of the volume, is expounded in a practical and lucid manner. The chapters dealing with ametropia and refraction of the eye offer the student a clear explanation of the subjects involved. The final chapter on contact glasses and telescopic spectacles is followed by a carefully compiled bibliography.

In the eyes of the reviewer, no better book on clinical refraction of the human eye has ever been published. It is a valuable and welcome addition to the library of the physician who intends to specialize in ophthalmology and of the practicing ophthalmologist.

—CHARLES A. PERERA, M.D.

THE INFLUENCE OF PARENTAL ATTITUDES AND SOCIAL ENVIRONMENT ON THE PERSONALITY DEVELOPMENT OF THE ADOLESCENT BLIND. Vita Stein Sommers, Ph.D. New York: American Foundation for the Blind, 1944. 124 p.

This interesting book presents a study of the factors conditioning the behavior and personality of adolescent blind and, while the REVIEW in general does not deal with the blind, we feel that some of the psychological aspects may apply also to those who have seriously defective vision.

The 143 blind children studied were carefully selected so as to include only those totally or practically blind—those either born blind or who became blind before the age of six, of normal or superior intelligence, with one or more seeing siblings, and 14 to 21 years of age. They were given the California Personality Test, and special questionnaires were answered by them and their parents. In addition, complete case studies were done on 50 of them. Results were evaluated and analyzed statistically.

The personality test showed that blind adolescents as a group

fall below the norms of the seeing with respect to personal and social adjustment. However, it was felt that the adjustments of the blind could not be adequately measured and compared with those of the seeing by such a test.

The special questionnaires revealed that blind persons do not exhibit the same type of behavior reactions; on the contrary, they develop a wide variety of attitudes and feelings as a natural out-growth of a social environment which rarely gives them the understanding essential for development of a wholesome personality. The study suggests that frustrations or maladjustments result more frequently from the social attitudes and conditions surrounding the blind person than from the sensory disability itself.

The final conclusion was that a definite relationship exists between the blind child's behavior and adjustment and the parental attitudes and the environment to which the child has been exposed in early life. The study clearly indicates that the feelings which the individual has with regard to his own inferiority, incompetence, uncertainty, and the realization of his physical defect seem to be conditioned principally by the attitude of those around him, especially his parents.

Contributors to This Issue

Long active in industrial ophthalmology, **Mr. Joseph Minton, F.R.C.S.**, interrupted his service for active participation as Major in the British Army. Upon his return he was appointed ophthalmologist for the department of industrial ophthalmology of the Royal Eye Hospital, London, England.

Dr. Willis S. Knighton is well known to REVIEW readers. He has recently been made chairman of the Society's Committee on Glaucoma.

Miss Phyllis J. Howe is medical social worker for, and **Mrs. Margaret R. Osterman** is medical director of, the District of Columbia Society for the Prevention of Blindness.

Formerly from Minneapolis, **Dr. Ferdinand L. P. Koch** is a practicing ophthalmologist in New York, in charge of the demonstration glaucoma clinic at Manhattan Eye, Ear and Throat Hospital; **Miss Virginia M. Smith** is staff associate of the Society.

Our book reviewer: **Dr. Charles A. Perera**, practicing ophthalmologist in New York, is a member of the Society's Medical Liaison Committee.

